REMARKS/ARGUMENTS

In this amendment, claims 1, 14, and 26 are amended. No claims are canceled or amended. Thus, claims 1-32 remain pending.

Claim Rejections 35 USC § 103(a), Narita in view of Yu

Claims 1-6, 11-19, 24-27, and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita et al. (hereafter Narita)(US Pat. 5,293,558) in view of Yu et al. (hereafter Yu)(US Pat. 6,523,055).

Claims 1-13

Claim 1 is allowable over the above references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites:

> *in the first mode for multiplying two N-bit numbers, ... the first and second long word length multiplicands are multiplied together using the 2N-bit multiplier to form a 4N-bit result which includes the product of the first and second short word length multiplicands*
>
> *in the second mode for multiplying two 2N-bit numbers, ... the third and fourth long word length multiplicands are multiplied together using the 2N-bit multiplier to form a 4N-bit result without summing any intermediate multiplication results.*

Regarding the asserted first mode, at page 3, the Office Action states that Narita uses a "2N-bit" multiplier 10 in multiplying an N-bit number X and an N-bit number Y to obtain a 2N-bit result. *See Narita*, FIGS. 1-3 and col. 4 lines 29-63. However, a 2N-bit multiplier would output a 4N-bit result, not a 2N-bit result.

The advisory action clarifies this point in stating that "the multiplier is acting as a 2N-bit multiplier [by] performing the multiplication of two N-bit numbers." As stated above, the result of multiplying two N-bit numbers is a 2N-bit result. In contrast, claim 1 recites "*using the 2N-bit multiplier to form a 4N-bit result.*"

Regarding the asserted second mode, Narita multiplies a 2N-bit number X and a 2N-bit number Y using the N-bit multiplier 10. *Id.*, FIGS. 10-12 and col. 10 lines 44-51. Each number X and Y is broken up into two N-bit parts (e.g. X_H, X_L). The N-bit multiplier 10 then

multiplies each of the 4 combinations. These four intermediate results are then summed to create a 4N-bit result. In contrast, claim 1 recites "*using the 2N-bit multiplier to form a 4N-bit result.*"

Moreover, claim 1 recites forming "*a 4N-bit result without summing any intermediate multiplication results,*" whereas Narita does sum intermediate results.

Regarding Yu, Yu teaches that results of a multiplication may need to be aligned before summing, which is done by a shifting circuit 130. *See Yu*, FIGS. 1B and 1C and col. 6 line 54- to col. 7 line 7. This teaching simply corresponds to the digit matching of Narita that is performed for the intermediate sums. *See Narita*, FIG. 12 and col. 10 lines 51-55. Thus, the combination would be the same as Narita. Also, this shifting is performed on results of a multiplication and not multiplicands on which the multiplication is performed. Therefore, the combination of Yu with Narita does not make up for the above deficiencies in Yu and does not teach or suggest "*a first long word length multiplicand [that] is formed from a first short word length multiplicand.*"

For at least the reasons stated above, Applicant submits that claim 1 and its dependent claims 2-13 are allowable over the cited references.

Claims 14-32

Applicants submit that independent claims 14 and 26 should be allowable for at least this same rationale. Claims 15-25 depend from claim 14; and claims 27-32 depend from claim 26 and thus derive patentability at least therefrom.

Other rejections under 35 U.S.C. § 103(a)

Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita in view of Yu as applied to claims 6 and 19 above, and further in view of Henderson et al. (hereafter Henderson)(US Pat. 6,484,194).

Claims 8-10, 21-23, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita in view of Yu as applied to claims 1, 14, and 26 above, and further in view of Bosshart (US Pat. 4,754,421).

These claims derive patentability from their respective independent claims, which area allowable described above. The cited teachings of Henderson and Bosshart fail to make up for the deficiencies in Narita and Yu.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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